OBJECTIVES

This course is intended to introduce the general principles and considerations involved in the design of maritime structures especially the environmental and design loadings on the structures. The trainer will introduce the various types of jetty layouts, including breasting and mooring dolphins. In addition, design of the above structures will be taught in detail with actual examples. Fender design is one of the key factors in docking (or berthing) of the ship and forming an important loading to the jetties and dolphins. The function and terminology used in maritime structures will also be explained.

The course also includes the computation of wave forces on piles and seawalls, and design of breakwaters and groins.

A complete design calculation of an as-built Maritime Facilities consists of a Jetty (Loading Platform), two Breasting Dolphins and a pair of Mooring Dolphins for berthing of different sizes of oil tankers will be included the course.

FOR WHOM

Engineers, Designers, Accredited Checkers and Contractors.
COURSE OUTLINE

- **Introduction of Port and Maritime Structures**
- **Environmental and Design Forces on Maritime Structures**
  Introduction to various types of maritime structures, function, terminology and environment. General design considerations: criteria, requirements, site selection and layout. Impacts of maritime structures on environment. Design forces on maritime structures: Wind, current, wave, berthing force, mooring line force, earthquake (if applicable) in addition to the dead, superimposed and live loads.

- **A Typical Jetty Layout Plan**
- **Fender Design**
- **Breasting Dolphin Design**
  Introduction of various types of maritime structures consist of jetty (loading platform), breasting and mooring dolphins. Selection and design of rubber fenders. Breasting Dolphin: Selection, functions, loadings and design.
- **Mooring Line Forces**
- **Mooring Dolphin Design**
  Mooring line patterns for securing ships. Computation of mooring line forces. Mooring Dolphin: Selection, functions, loadings and design.

- **Forces on Jetty (Loading Platform)**
- **Jetty (Loading Platform) Design**
  Jetty (loading platform): General consideration, selection, functions, loadings and design.

- **Wave Forces on Piles, Seawalls and Breakwater Design**
  Computation of wave forces on piles and seawalls. Breakwaters: Types, selection and design.

- **A complete design calculation of an as-built Maritime Facilities consists of a Jetty (Loading Platform), two Breasting Dolphins and a pair of Mooring Dolphins for berthing of different sizes of oil tankers.**

CV OF TRAINER

*Er. Ang Chee Keong*

Er. Ang. is a former Associate Professor in the School of Civil and Structural Engineering, Nanyang Technological University (NTU), Singapore for 16 years. He received his BSc from National Taiwan University and MSc from New York University 1970. Prior to joining NTU in 1983, he was working for several international reputable consulting firms in New York for 14 years. He is the Principal of Ang Chee Keong & Associates, a Civil, Structural and Marine Engineering Consulting Firm, founded in 1999.

Er. Ang is a Professional Engineer (Singapore and New York) and Accredited Checker in Singapore. He is a Fellow of the Institution of Engineers Singapore as well as the American Society of Civil Engineers.

During the past 34 years, Er. Ang had provided consultancy services to Statutory Boards, Consulting firms and construction companies. He also carried out Accredited Checker work for high-rise buildings, The Esplanade and Maritime Facilities & projects.
Registration Form

3-Day Short Course On Design Of Maritime Structures

Date: 9, 16 and 23 May 2018 (Wednesdays)

Time: 9.00am – 5.30pm

CPD Programme: 21 PDUs - To Be Confirmed

Venue: 80 Jurong East St 21 #04-10 Devan Nair Institute For Employment and Employability
Singapore 609607

Fees*: $843.16 IES & IStructE Members / $896.66 CIJC Members / $950.16 Non-Members

* Fee shown is Inclusive of 7% GST, course materials and meals.

* Certificate of Attendance will be issued to PAID Participants with 100% attendance

Please register online/mail/fax the completed form by 30 April 2018 Before 12noon to:

Karen Phua
80 Jurong East St 21 #04-10 Devan Nair Institute For Employment and Employability
Singapore 609607
(Tel) 6463 9211 (Fax) 6563 6030

Participant Details

Name: ____________________________________________ NRIC: ____________________________

Company: ______________________________________ Designation: ________________________

Address 1: ____________________________________________ (For mailing of invoice and receipt)

Address 2: ____________________________________________ (For mailing of Certificate)

Postal Code: ____________________________ Sex: __________________________ Male / Female

Mobile No.: ____________________________ Fax: __________________________

Email: ____________________________________________ (For sending of confirmation email)

Please indicate:

☐ IES members    IES M’ship No.: __________________ P.E. No.: __________________ (if applicable)

☐ Non-members   ☐ Sponsored by company   ☐ Vegetarian

Contact Person Details (if different from participant)

Name: ____________________________________________ Designation: __________________________

Tel: ____________________________________________ Fax: __________________________

Email: ____________________________________________

Payment Details

Bank / Cheque No.: ____________________________________________ Amount ($): "Engineers Singapore Pte Ltd”.

Acceptance of Terms and Conditions for Registrations of IES Academy’s Events

I agree to abide by the Terms and Conditions for Registration of IES Academy’s Events.

Name: ____________________________________________ Signature: ____________________________
TERMS & CONDITIONS COURSE REGISTRATION

Registration
Any registration, whether on-line or fax will be on a first-come-first-served basis and will only be confirmed upon receipt of full payment by Engineers Singapore Pte Ltd unless otherwise invoice to company.

All registrations must be submitted with duly completed registration form.

Closing Date & Payment
The closing date of the event will be 1 week prior to event commencement date or earlier. Cheque crossed and make payable to ‘Engineers Singapore Pte Ltd’ with the Title of The Event indicated clearly written on the back of the cheques and submitted with the duly completed registration forms to reach us 1 month before event in order to guarantee the seat.

Attn: Karen Phua
IES Academy@Jurong East
Devan Nair Institute for Employment and Employability 80 Jurong East Street 21, #04-10 Singapore 609607

Confirmation of Registration
Confirmation of registration will be given at least 2 weeks before the commencement date via email. If you do not receive the said confirmation email, you are required to contact IESA at 6463 9211 during office hours.

IESA reserves the right to allow only confirmed registrants to attend the Event.

Withdrawals/Refunds of Fees
Written notice at least 14 days in advance before the commencement of the event
Full course fee shall be refunded subjected to 4.5% transaction charge.

➢ NO refund otherwise.

No show of participant will not be accepted as a valid reason for withdrawal/refund.

One time replacement is allowed only if written notice is received by us at least 14 days before the commencement of the event. However, when an IES member is replaced by a non-member, the participant has to pay the difference in the relevant fees.

Cancellation/Postponement
Changes in Venue, Dates, Time and Speakers for the Events can occur due to unforeseen circumstances. IES reserves the full rights to cancel or postpone the Event under such circumstances without prior reasons. Every effort, however, will be made to inform the participants or contact person of any cancellation or postponement.

Fees will be refunded in FULL if any Event is cancelled by IESA.

UTAP (Union Training Assistance Programme) is an individual skills upgrading account especially for NTUC members. As a member, you enjoy UTAP funding at 50% of the unfunded course fee capped at $250 every year.

SkillsFuture Credit (SFC) “All Singaporeans aged 25 and above can use their $500 SkillsFuture Credit from the government to pay for a wide range of approved skills-related courses. Visit the SkillsFuture Credit website (www.skillsfuture.sg/credit) to choose from the courses available on the SkillsFuture Credit course directory.”
Please visit https://www.ies.org.sg/iesa/Skillsfuture_&_UTAP.pdf for more information on SFC & UTAP claim.

PERSONAL DATA PROTECTION ACT
I consent to the processing by Institution of Engineers, Singapore of personal data, including sensitive personal data as defined in the Data Protection Act 2014, about me for the proper purposes of Institution of Engineers, Singapore (IES). I undertake to observe the provisions of the Data Protection Act 2014 in relation to any personal data I may myself hold and process as a Members of Institution of Engineers, Singapore, and I agree to indemnify Institution of Engineers, Singapore from liability for any claims or damages that may arise from the processing of this data. For more information kindly refer to: www.ies.org.sg/PDPA.

Enquiries
For further enquiries, please contact IESA general office at Tel: 6463 9211.